

PRINTING/GRAPHICS TECHNOLOGY I

COURSE DESCRIPTION

PRINTING/GRAPHICS TECHNOLOGY I is the first in a series that prepares students for gainful employment and/or entry into post-secondary education in printing industry. Content provides the opportunity to acquire marketable skills by examining both the industry and its career opportunities and by developing leadership, teamwork, and industry skills. Laboratory facilities and experiences simulate those found in the printing industry.

It is strongly recommended that administration and guidance follow the scope and sequence and course recommendations as listed.

Recommended: Skills in Keyboarding

Recommended Credits: 1

Recommended Grade Levels: 9th – 10th

Number of Competencies in Course: 44

PRINTING/GRAPHICS TECHNOLOGY I

STANDARDS

- 1.0** Students will perform safety examinations and maintain safety records.
- 2.0** Students will demonstrate leadership, citizenship, and teamwork skills required for success in the school, community, and workplace.
- 3.0** Students will integrate reading, writing, math, and science skills and understand the impact of academic achievement in the workplace.
- 4.0** Students will evaluate career opportunities and career paths within the printing industry.
- 5.0** Students will demonstrate basic industry skills in digital image preparation.
- 6.0** Students will demonstrate basic industry skills in image assembly/platemaking.
- 7.0** Students will demonstrate basic industry skills in press operations.
- 8.0** Students will demonstrate basic industry skills in finishing and bindery operations.
- 9.0** Students will demonstrate interpersonal and employability skills required in the printing industry.

PRINTING/GRAPHICS TECHNOLOGY I

STANDARD 1.0

Student will perform safety examinations and maintain safety records.

LEARNING EXPECTATIONS

The student will:

- 1.1** Pass with 100% accuracy a written examination relating specifically to safety issues in relation to this course of study.
- 1.2** Pass with 100% accuracy a performance examination relating specifically to tools and equipment in relation to this course of study.
- 1.3** Maintain a portfolio record of written safety examinations and equipment examinations for which the student has passed an operational checkout by the instructor.
- 1.4** Follow rules and regulations to comply with personal and lab safety standards to include general standards, fire and electrical.
- 1.5** Practice and apply health and safety OSHA standards as they pertain to the course.
- 1.6** Select tools, technology, machinery, equipment, and materials appropriate for the given assignment.

PERFORMANCE INDICATORS: EVIDENCE STANDARD IS MET

The student:

- 1.1** Pass with 100% accuracy a written examination relating specifically to safety issues in relation to this course of study.
- 1.2** Pass with 100% accuracy a performance examination relating specifically to tools and equipment in relation to this course of study.
- 1.3** Maintain a portfolio record of written safety examinations and equipment examinations for which the student has passed an operational checkout by the instructor.
- 1.4** Demonstrate and follows procedures for classroom and lab safety, fire safety, and electrical safety.
- 1.5** Assesses and applies health and safety OSHA standards as they pertain to the course.
- 1.6A** Demonstrate appropriate use of tools to complete assignment.
- 1.6B** Identifies sources of information concerning state-of-the-art tools, equipment, materials, and technologies.
- 1.6C** Identifies potential hazards related to related to use of tools and equipment.

SAMPLE PERFORMANCE TASKS

- Assess the work area for safety hazards.
- Design a corrections program for identified hazards.
- Model the appropriate protective equipment for an assignment for an assigned task.
- Read manufacturer specifications to determine safe practices while working on various electrical and electronic systems.
- Demonstrate personal safety (e.g., dress eye and hearing devices, and jewelry).
- Demonstrate the handling and disposing of chemicals.
- Complete a safety inspection evaluating possible fire and water hazards.
- Develop a presentation on right to know laws and any other laws required for safety.
- Practice safe disposal procedures when using chemicals used in related processes.
- Practice ergonomic processes when using the computers and equipment.
- Prepare Occupational Safety and Health notebook for the Tennessee SkillsUSA Championship

INTEGRATION LINKAGES

Science, Computer Skills, Research and Writing Skills, Language Arts, Communication Skills, Leadership Skills, Teamwork Skills, Algebra, Geometry, Technical Geometry, Secretary's Commission on Achieving Necessary Skills (SCANS), SkillsUSA, SkillsUSA *Professional Development Program* (PDP), SkillsUSA *Total Quality Program* (TQP).

PRINTING/GRAPHICS TECHNOLOGY I

STANDARD 2.0

Students will demonstrate leadership, citizenship, and teamwork skills required for success in the school, community, and workplace.

LEARNING EXPECTATIONS

The student will:

- 2.1** Cultivate positive leadership skills.
- 2.2** Participate in the student organization directly related to their program of study as an integral part of classroom instruction.
- 2.3** Assess situations, apply problem-solving techniques and decision-making skills within the school, community, and workplace.
- 2.4** Participate as a team member in a learning environment.
- 2.5** Respect the opinions, customs, and individual differences of others.
- 2.6** Build personal career development by identifying career interest, strengths, and opportunities.

PERFORMANCE INDICATORS: EVIDENCE STANDARD IS MET

The student:

- 2.1A** Demonstrates character and leadership skills using creative and critical thinking skills.
- 2.1B** Uses creative thought process by “thinking outside the box”.
- 2.2A** Relates the creed, purposes, motto, and emblem of their student organization, directly related to personal and professional development.
- 2.2B** Plans and conducts meetings and other business according to accepted rules of parliamentary procedure.
- 2.3A** Makes decisions and assumes responsibilities.
- 2.3B** Analyzes a situation and uses the Professional Development Program or career technical student organization materials directly related to the student’s program of study to resolve it.
- 2.3C** Understands the importance of learning new information for both current and future problem solving and decision making.
- 2.4A** Organizes committees and participates in functions.
- 2.4B** Cooperates with peers to select and organize a community service project.
- 2.5A** Research different customs and individual differences of others.
- 2.5B** Interacts respectfully with individuals of different cultures, gender, and backgrounds.
- 2.5C** Resolves conflicts and differences to maintain a smooth workflow and classroom environment.
- 2.6A** Creates personal career development by identifying career interests, strengths, and opportunities.

- 2.6B** Identifies opportunities for career development and certification requirements.
- 2.6C** Plans personal educational paths based on available courses and current career goals.
- 2.6D** Create a resumé that reflects student's skills, abilities, and interest.

SAMPLE PERFORMANCE TASKS

- Create a leadership inventory and use it to conduct a personal assessment.
- Participate in various career technical student organizations' programs and/or competitive events.
- Implement an annual program of work.
- Prepare a meeting agenda for a specific career technical student organization monthly meeting.
- Attend a professional organization meeting.
- Participate in the American Spirit Award competition with SkillsUSA.
- Complete *Professional Development Program Levels I and Level II*, SkillsUSA.

INTEGRATION LINKAGES

SkillsUSA, Professional Development Program; SkillsUSA; Communications and Writing Skills; Teambuilding Skills; Research; Language Arts; Sociology; Psychology; Math; Technical Math; English IV; Communications for Life; Social Studies; Problem Solving; Interpersonal Skills; Employability Skills; Critical-Thinking Skills; Secretary's Commission on Achieving Necessary Skills (SCANS); Chamber of Commerce; Colleges; Universities; Technology Centers.

PRINTING/GRAPHICS TECHNOLOGY I

STANDARD 3.0

Students will integrate reading, writing, math, and science skills and understand the impact of academic achievement in the work place.

LEARNING EXPECTATIONS

The student will:

- 3.1** Assume responsibility for accomplishing classroom assignments and workplace goals within accepted time frames.
- 3.2** Develop advanced study skills.
- 3.3** Demonstrate and use written and verbal communication skills.
- 3.4** Read and understand technical documents such as regulation, manuals, reports, forms, graphs, charts, and tables.
- 3.5** Apply the foundations of mathematical principles such as algebra, geometry, and advanced math to solve problems.
- 3.6** Apply the basic scientific principles and methods to solve problems and complete task.
- 3.7** Understand computer operations and related applications to input, store, retrieve, and output information as it relates to the course.
- 3.8** Research, recognize, and understand the interactions of the environment and *green* issues as they relate to the course work and to a global economy.

PERFORMANCE INDICATORS: EVIDENCE STANDARD IS MET

The student:

- 3.1A** Uses appropriate time management to achieve goals.
- 3.1B** Arrives in class on time each day.
- 3.1C** Complete assignments and meets deadlines.
- 3.2A** Assesses current personal study skills.
- 3.2B** Demonstrates advanced note-taking ability.
- 3.2C** Formulates appropriate study strategies for given task.
- 3.3A** Communicates ideas, information, and messages in a logical manner.
- 3.3B** Fills out forms, reports, logs, and documents to comply with class and project requirements.
- 3.4A** Reads and understands technical documents and uses industry jargon, acronyms, and terminology appropriately.
- 3.4B** Recognize the meaning of specialized words or phrases unique to the career and industry.
- 3.5A** Utilizes computation in adding, subtracting, multiplying, and dividing of whole numbers, fractions, decimals, and percents.
- 3.5B** Chooses the right mathematical method or formula to solve a problem.

- 3.5C** Performs math operations accurately to complete classroom and lab task.
- 3.6A** Understands scientific principles critical to the course.
- 3.6B** Applies scientific principles and technology to solve problems and complete tasks.
- 3.6C** Has knowledge of the scientific method (e.g., identifies the problem, collects information, forms opinions, and drawn conclusions).
- 3.7A** Uses basic computer hardware (e.g., personal computers, printers) and software to perform task as required for the course work.
- 3.7B** Understands capabilities of computers and common computer terminology (e.g., program, operating system).
- 3.7C** Applies the appropriate technical solution to complete tast.
- 3.7D** Inputs data and information accurately for the course requirements.
- 3.8A** Researches and recognizes *green* trends in career area and industry.
- 3.8B** Examine current environmentally friendly trends.
- 3.8C** Applies sustainability practices by understanding processes that are non-polluting, conserving of energy and natural resources, and economically efficient.

SAMPLE PERFORMANCE TASKS

- Examine and compile different learning styles for portfolios.
- Create calendars containing all activities and obligations for one month. Discusses how to handle conflicting or competing obligations then complete daily and weekly plans showing task, priorities, and scheduling.
- Complete self-assesments of study habits.
- Complete precise and exact measurements.
- Explore study strategies for different subjects and tasks then analyze two homework assignments and select the best strategies for completing them.
- Create “life-maps” showing necessary steps or “landmarks” along the path to personal, financial, educational, and career goals.
- Take notes during counselor classroom visits and work in small groups to create flow charts of the path options.
- List attitudes that lead to success then rate individually in these areas. Work together to suggest strategies for overcoming the weaknesses identified own and partners’ self-assessments then share with the class the strategies developed.
- Research the Internet and other technology to collect and analyze data concerning climate change.
- Keep a data file of altenative energy sources and the sources’ impact on the environment.
- Develop a recycling project at home or for the school environment.

INTEGRATION LINKAGES

SkillsUSA, Professional Development Program; SkillsUSA; Communications and Writing Skills; Teambuilding Skills; Research; Language Arts; Sociology; Psychology; Math; Technical Math; English IV; Communications for Life; Social Studies; Problem Solving; Interpersonal Skills; Employability Skills; Critical-Thinking Skills; Secretary’s Commission

on Achieving Necessary Skills (SCANS); Chamber of Commerce; Colleges; Universities; Technology Centers.

PRINTING/GRAPHICS TECHNOLOGY I

STANDARD 4.0

Students will evaluate career opportunities and career paths within the printing industry.

LEARNING EXPECTATIONS

The student will:

- 4.1** Explain titles, roles, and functions of individuals in the printing industry.
- 4.2** Investigate employment and entrepreneurial opportunities in the printing industry.
- 4.3** Evaluate personal characteristics required for working in the printing industry.
- 4.4** Compare various career options in each printing sub-cluster and required certification, education, licensure, and registries.

PERFORMANCE INDICATORS: EVIDENCE STANDARD IS MET

The student:

- 4.1A** Researches major occupations within the printing industry.
- 4.1B** Categorizes major responsibilities for each occupation in the printing industry.
- 4.2** Researches and develops a projection of industry trends related to career opportunities in the printing industry.
- 4.3** Profiles personal characteristics that are beneficial to the success of a professional in the printing industry.
- 4.4** Investigates career options and charts the characteristics of various careers in the printing industry.

SAMPLE PERFORMANCE TASKS

- Categorize employment and entrepreneurial opportunities (listing salary).
- Develop a profile of career opportunities, education requirements, and projected future employment.
- Develop a personal career plan.
- Appraise professional printing industry organizations and explain their purposes.
- Incorporate professional terminology into conversation.
- Attend a professional organization meeting.

INTEGRATION LINKAGES

Computer Skills, Art, Math, Technical Math, Chemistry, Science, Health, Manipulative Skills, Communication Skills, Teamwork Skills, Language Arts, Research and Writing Skills, Decision-Making Skills, Critical Thinking Skills, Secretary's Commission on Achieving Necessary Skills (SCANS), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), Tennessee Occupational Safety and Health Administration (TOSHA), PrintED, SkillsUSA

PRINTING/GRAPHICS TECHNOLOGY I

STANDARD 6.0

Students will demonstrate basic industry skills in digital image preparation.

LEARNING EXPECTATIONS

The student will:

- 5.1** Interpret basic design and type principles.
- 5.2** Distinguish between the different software programs available and each one's purpose.
- 5.3** Demonstrate uses of raster and vector art.
- 5.4** Develop and demonstrate time management and work-sequencing skills.

PERFORMANCE INDICATORS: EVIDENCE STANDARD IS MET

The student:

- 5.1** Identifies type fundamentals in design.
- 5.2** Compares different software including graphic software, page layout, and word processor.
- 5.3** Defines the difference between raster and vector and their uses.
- 5.4A** Proposes time management and other organizational management techniques.
- 5.4B** Calculates the benefits of incorporating time management skills in the printing industry.

SAMPLE PERFORMANCE TASKS

- Create a document with appropriate software using proper margins and formatting.
- Import text and graphic into page layout software and create a brochure.

INTEGRATION LINKAGES

Computer Skills, Art, Math, Technical Math, Chemistry, Science, Health, Manipulative Skills, Communication Skills, Teamwork Skills, Language Arts, Research and Writing Skills, Decision-Making Skills, Critical Thinking Skills, Secretary's Commission on Achieving Necessary Skills (SCANS), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), Tennessee Occupational Safety and Health Administration (TOSHA), PrintED, SkillsUSA

PRINTING/GRAPHICS TECHNOLOGY I

STANDARD 7.0

Students will demonstrate basic industry skills in image assembly/platemaking.

LEARNING EXPECTATIONS

The student will:

- 6.1** Demonstrate and utilize various tools and supplies for image assembly.
- 6.2** Employ skills needed to create a single-color flat.
- 6.3** Distinguish and demonstrate various platemaking equipment and materials.

PERFORMANCE INDICATORS: EVIDENCE STANDARD IS MET

The student:

- 6.1** Uses appropriate tools and supplies for image assembly.
- 6.2** Creates single-color flat using proper processes and makes necessary corrections.
- 6.3** Selects and uses appropriate platemaking equipment and/or tools to produce exposed and processed plates.

SAMPLE PERFORMANCE TASKS

- Create single-color flat making corrections needed.
- Produce properly exposed and processed plate for printing a project.

INTEGRATION LINKAGES

Computer Skills, Art, Math, Technical Math, Chemistry, Science, Health, Manipulative Skills, Communication Skills, Teamwork Skills, Language Arts, Research and Writing Skills, Decision-Making Skills, Critical Thinking Skills, Secretary's Commission on Achieving Necessary Skills (SCANS), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), Tennessee Occupational Safety and Health Administration (TOSHA), PrintED, SkillsUSA

PRINTING/GRAPHICS TECHNOLOGY I

STANDARD 8.0

Students will demonstrate basic industry skills in press operations.

LEARNING EXPECTATIONS

The student will:

- 7.1** Evaluate paper transfer system of printing equipment.
- 7.2** Demonstrate basic press operations.
- 7.3** Calculate cost of operating basic printing equipment.
- 7.4** Evaluate the quality of production produced by clean equipment.
- 7.5** Perform preventive maintenance for printing equipment.

PERFORMANCE INDICATORS: EVIDENCE STANDARD IS MET

The student:

- 7.1** Performs basic setup for printing a single-color job.
- 7.2** Produces a printed single-color job using appropriate printing equipment.
- 7.3** Analyzes a production job and calculates the cost of the production.
- 7.4** Demonstrates procedures for cleaning equipment.
- 7.5A** Performs daily cleanup and basic maintenance on printing equipment.
- 7.5B** Develops a schedule for preventive maintenance on printing equipment.

SAMPLE PERFORMANCE TASKS

- Calculate the cost of a single-color job on printing equipment.
- Chart and schedule preventive maintenance on printing equipment.
- Develop a fair market price for a single-color job on printing equipment.
- Set up and produce a single-color job on printing equipment.
- Perform daily cleanup and maintenance of printing equipment.

INTEGRATION LINKAGES

Computer Skills, Art, Math, Technical Math, Chemistry, Science, Health, Manipulative Skills, Communication Skills, Teamwork Skills, Language Arts, Research and Writing Skills, Decision-Making Skills, Critical Thinking Skills, Secretary's Commission on Achieving Necessary Skills (SCANS), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), Tennessee Occupational Safety and Health Administration (TOSHA), PrintED, SkillsUSA

PRINTING/GRAPHICS TECHNOLOGY I

STANDARD 9.0

Students will demonstrate basic industry skills in finishing and bindery operations.

LEARNING EXPECTATIONS

The student will:

- 8.1** Demonstrate knowledge of cutting diagrams and cutter operations.
- 8.2** Distinguish various folds for printed products.
- 8.3** Evaluate the various binding techniques.

PERFORMANCE INDICATORS: EVIDENCE STANDARD IS MET

The student:

- 8.1** Creates master cutting diagram and makes accurate cuts on mechanical cutter.
- 8.2** Creates various folds for printed products using an automatic folding machine.
- 8.3A** Produces a side-stitched, a saddle-stitched, and an adhesive bound product.
- 8.3B** Determines when each binding technique should be used.

SAMPLE PERFORMANCE TASKS

- Tour a publishing company.
- Accurately cut stock on mechanical cutter using cutting diagram.
- Set up folder to make a single fold.

INTEGRATION LINKAGES

Computer Skills, Art, Math, Technical Math, Chemistry, Science, Health, Manipulative Skills, Communication Skills, Teamwork Skills, Language Arts, Research and Writing Skills, Decision-Making Skills, Critical Thinking Skills, Secretary's Commission on Achieving Necessary Skills (SCANS), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), Tennessee Occupational Safety and Health Administration (TOSHA), PrintED, SkillsUSA

PRINTING/GRAPHICS TECHNOLOGY I

STANDARD 9.0

Students will demonstrate interpersonal and employability skills required in the printing industry.

LEARNING EXPECTATIONS

The student will:

- 9.1** Demonstrate employability skills such as attendance, time management, individual responsibility, professional conduct, and appearance.
- 9.2** Demonstrate interview, application, and resume writing skills necessary for job attainment.
- 9.3** Demonstrate proficiency in keyboarding skills, including equipment operation, maintenance and repair, computer systems, and computer applications.
- 9.4** Analyze ways of dealing with stress and human relations.
- 9.5** Evaluate methods of conflict resolutions.

PERFORMANCE INDICATORS: EVIDENCE STANDARD IS MET

The student:

- 9.1** Designs a check sheet of employability skills and maintenance necessary in local printing industries.
- 9.2A** Prepares a resume and job application for a specific job.
- 9.2B** Participates in a job interview.
- 9.3** Operates computer equipment, systems, and applications.
- 9.4** Incorporates methods of stress reduction.
- 9.5A** Demonstrates methods of conflict resolution.
- 9.5B** Dramatizes the practices of verbal and non-verbal communications.

SAMPLE PERFORMANCE TASKS

- Design student rating performance guidelines for specific employment.
- Use the performance guideline tool to evaluate a graphic communication worker in a given scenario for ethics and quality of work.
- Develop a career presentation of printing.
- Develop and print a resume.
- Participate in mock interviews.
- Practice stress reduction techniques.
- Role-play and analyze methods of conflict resolution.
- Research cultural diversity and discuss findings with the class.

INTEGRATION LINKAGES

Computer Skills, Art, Math, Technical Math, Chemistry, Science, Health, Manipulative Skills, Communication Skills, Teamwork Skills, Language Arts, Research and Writing Skills, Decision-Making Skills, Critical Thinking Skills, Secretary's Commission on Achieving Necessary Skills (SCANS), Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), Tennessee Occupational Safety and Health Administration (TOSHA), PrintED, SkillsUSA